

What is claimed is:

1. A structure of a light emitting diode (LED), comprising:

a substrate;

a bragg reflector layer located on said substrate;

5 an LED epitaxial structure located on said bragg reflector layer, wherein said LED epitaxial structure comprises an n-type III-V compound semiconductor layer, an illuminating active layer, and a p-type III-V compound semiconductor layer;

a first electrode located on an exposed portion of said n-type III-V compound semiconductor layer; and

10 a second electrode located on an exposed portion of said p-type III-V compound semiconductor layer.

2. The structure according to claim 1, wherein said bragg reflector layer comprises a plurality of oxidizable semiconductor layers and a plurality of hardly oxidized semiconductor layers stacked on each other.

3. The structure according to claim 2, wherein said plurality of hardly oxidized semiconductor layers in said bragg reflector layer are AlGaInP layers.

20 4. The structure according to claim 2, wherein said plurality of hardly oxidized semiconductor layers in said bragg reflector layer are AlInP layers.

5. The structure according to claim 2, wherein said plurality of hardly oxidized semiconductor layers in said bragg reflector layer are AlGaAs layers.

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6. The structure according to claim 2, wherein said plurality of oxidizable layers in said bragg reflector layer are high aluminum-contained AlGaAs layers.

7. The structure according to claim 6, wherein the aluminiferous content of said high aluminum-contained AlGaAs layers are between about 80% and about 100%.

8. The structure according to claim 6, wherein a current insulating layer is formed by oxidizing said high aluminum-contained AlGaAs layers at a temperature between about 300 and about 800 degree C.

9. A method forming a light emitting diode, comprising the steps of:

providing a substrate;

forming a bragg reflector layer on said substrate;

forming an LED epitaxial structure on said bragg reflector layer, wherein said

LED epitaxial structure comprises an n-type III-V compound semiconductor layer, an illuminating active layer, and a p-type III-V compound semiconductor layer;

etching said LED epitaxial structure for exposing a portion of said n-type III-V compound semiconductor layer;

conducting a treatment for completely oxidizing a high aluminum-contained layer of said bragg reflector layer for forming a high reflectivity and current insulating layer in said bragg reflector layer;

forming a first electrode on said exposed n-type III-V compound semiconductor layer; and

forming a second electrode on said p-type III-V compound semiconductor layer.

10. The method according to claim 9, wherein said bragg reflector layer comprises a plurality of oxidizable semiconductor layers and a plurality of hardly oxidized semiconductor layers stacked on each other.

5 11. The method according to claim 10, wherein said plurality of hardly oxidized semiconductor layers in said bragg reflector layer are AlGaInP layers.

12. The method according to claim 10, wherein said plurality of hardly oxidized semiconductor layers are AlInP layers.

10 13. The method according to claim 10, wherein said plurality of hardly oxidized semiconductor layers in said bragg reflector layer are AlGaAs layers.

14. The method according to claim 10, wherein said plurality of oxidizable layers in said bragg reflector layer are high aluminum-contained AlGaAs layers.

15 15. The method according to claim 14, wherein the aluminiferous content of said high aluminum-contained AlGaAs layers are between about 80% and about 100%.

20 16. The method according to claim 14, wherein a current insulating layer is formed by oxidizing said high aluminum-contained AlGaAs layers at a temperature between about 300 and about 800 degree C.